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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,502

Applicant(s)

KOBORI ET AL.

Examiner

Harry D Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any extended patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8, 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-14 is/are rejected.
- 7) ☒ Claim(s) 9 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 04/25/2003
- 3) ☒ Information Disclosure Statement(s) (PTO-1443) Paper No(s) 21342002
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group 1 in the response filed 24 October 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Glezen et al (US 5,873,992).

Glezen et al anticipate the invention as claimed. Glezen et al teach (see table 5, col. 13 and col. 14, lines 23-27) a process including forming a layer of gold by electroplating (i.e.-a gold plated body) and then annealing the layer at 350°C as well as a process including forming a layer of gold by electroplating (i.e.-a gold plated body) and then annealing the layer at 350°C or 400°C for 30 min.

Regarding the limitation "so that a large number of sulfur-containing molecules can be immobilized thereon", the annealing step of Glezen et al is considered to inherently possess this function because Glezen et al teach a time and temperature for

the annealing step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claim 2, regarding the limitation "so as to obtain a structure in which the surface gold crystals have no less than 30% planes with (1,1,1) orientation", the annealing step of Glezen et al is considered to inherently possess this function because Glezen et al teach a time and temperature for the annealing step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claim 3, Glezen et al teach (see table 5, col. 13 and Procedure III, col. 11) that the method of forming the gold layer (electroplating) contains the steps of immersing an electrically conductive substrate in a gold plating solution and passing an electric current through the substrate and solution.

Regarding claims 5 and 6, since the "sulfur-containing molecules" are not actively recited in a method step in claims 1 or 2, claims 5 and 6 fail to further limit the process of claim 1.

4. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lechtzin (US 4,343,684).

Lechtzin anticipates the invention as claimed. Lechtzin teaches (see col. 7, lines 46-57) a process including electroforming a layer of gold (i.e.-a gold plated body) and then annealing the layer at 900°F (~482°C) for 60 minutes.

Regarding the limitation "so that a large number of sulfur-containing molecules can be immobilized thereon", the annealing step of Lechtzin is considered to inherently possess this function because Lechtzin teach a time and temperature for the annealing

step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claim 2, regarding the limitation "so as to obtain a structure in which the surface gold crystals have no less than 30% planes with (1,1,1) orientation", the annealing step of Lechtzin is considered to inherently possess this function because Lechtzin teach a time and temperature for the annealing step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claim 3, Lechtzin teaches (see col. 1, lines 57-68) that the method of electroforming the gold layer (electroplating) contains the steps of immersing an electrically conductive substrate in a gold plating solution and passing an electric current through the substrate and solution.

Regarding claims 5 and 6, since the "sulfur-containing molecules" are not actively recited in a method step in claims 1 or 2, claims 5 and 6 fail to further limit the process of claim 1.

5. Claims 10, 12, 13 and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wachi et al (US 5,614,004).

Regarding claim 10, Wachi et al teach (see col. 1, lines 10-14) a method of making a gold-plated body that includes starting from a material that includes a crystal growth enhancer (thallium compounds).

Regarding the limitation "that allows a large number of sulfur-containing molecules to be immobilized on the surface thereof", this is merely a recitation of the

intended use of the claimed method. Thus, even though Wachi et al teach the process steps are performed for a different reason, the claims are still anticipated.

Regarding claim 12, regarding the limitation "so as to obtain a structure in which the surface gold crystals have no less than 30% planes with (1,1,1) orientation", the step of adding a crystal growth enhancer in the method of Wachi et al is considered to inherently possess this function because Wachi et al teach an identical compound to be added to the gold plating solution (thallium-compound).

Regarding claims 13 and 14, since the "sulfur-containing molecules" are not actively recited in a method step in claim 10, claims 13 and 14 fail to further limit the process of claim 10.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glezen et al (US 5,873,992) in view of Wachi et al (US 5,614,004).

The teachings of Glezen et al are described above in paragraph no. 3.

Regarding claim 4, Glezen et al is silent as to adding a crystal growth enhancer to the gold plating solution. However, Wachi et al teach (see col. 1, lines 10-14) that thallium compounds are added to gold plating solutions for the purpose of aiding crystal growth in the deposit. Therefore, it would have been obvious to one of ordinary skill in

the art to have added a crystal growth enhancer as taught by Wachi et al to the plating solution of Glezen et al because Wachi et al teach that the crystal growth enhancer (thallium compound) aids in the formation of crystal growth of the deposited gold.

Regarding claim 11, Glezen et al teach the method of obtaining the gold-plated body (as described above with respect to claim 3). However, Glezen et al do not teach adding a crystal growth enhancer to the gold plating solution. Wachi et al teach (see col. 1, lines 10-14) that thallium compounds are added to gold plating solutions for the purpose of aiding crystal growth in the deposit. Therefore, it would have been obvious to one of ordinary skill in the art to have added a crystal growth enhancer as taught by Wachi et al to the plating solution of Glezen et al because Wachi et al teach that the crystal growth enhancer (thallium compound) aids in the formation of crystal growth of the deposited gold.

Regarding claim 12, regarding the limitation "so as to obtain a structure in which the surface gold crystals have no less than 30% planes with (1,1,1) orientation", the annealing step of Glezen et al is considered to inherently possess this function because Glezen et al teach a time and temperature for the annealing step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claims 13 and 14, since the "sulfur-containing molecules" are not actively recited in the method of claim 11, claims 13 and 14 fail to further limit the process of claim 11.

8. Claims 4 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechtzin (US 5,873,992) in view of Wachi et al (US 5,614,004).

The teachings of Lechtzin are described above in paragraph no. 4.

Regarding claim 4, Lechtzin is silent as to adding a crystal growth enhancer to the gold plating solution. However, Wachi et al teach (see col. 1, lines 10-14) that thallium compounds are added to gold plating solutions for the purpose of aiding crystal growth in the deposit. Therefore, it would have been obvious to one of ordinary skill in the art to have added a crystal growth enhancer as taught by Wachi et al to the plating solution of Lechtzin because Wachi et al teach that the crystal growth enhancer (thallium compound) aids in the formation of crystal growth of the deposited gold.

Regarding claim 11, Lechtzin teach the method of obtaining the gold-plated body (as described above with respect to claim 3). However, Lechtzin do not teach adding a crystal growth enhancer to the gold plating solution. Wachi et al teach (see col. 1, lines 10-14) that thallium compounds are added to gold plating solutions for the purpose of aiding crystal growth in the deposit. Therefore, it would have been obvious to one of ordinary skill in the art to have added a crystal growth enhancer as taught by Wachi et al to the plating solution of Lechtzin because Wachi et al teach that the crystal growth enhancer (thallium compound) aids in the formation of crystal growth of the deposited gold.

Regarding claim 12, regarding the limitation "so as to obtain a structure in which the surface gold crystals have no less than 30% planes with (1,1,1) orientation", the annealing step of Lechtzin is considered to inherently possess this function because Lechtzin teach a time and temperature for the annealing step that is within the disclosed ranges (see specification at page 4, lines 16-25 and page 6, lines 1-4).

Regarding claims 13 and 14, since the "sulfur-containing molecules" are not actively recited in a method step in claim 11, claims 13 and 14 fail to further limit the process of claim 11.

Allowable Subject Matter

9. Claims 9 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: while the immobilization of sulfur-containing molecules was generally known in the prior art, see e.g.-Hill et al, and the annealing of electroplated gold was generally known in the prior art, see e.g.-Glezen et al and Lechtzin, there is no motivation to combine the annealing step into a process that also includes immobilizing a large number of sulfur-containing molecules on the gold surface. The annealing step of both Glezen et al and Lechtzin is for the purpose of stress relieving, however, there is no need for stress relief in the gold plated layer in the gene detection device of Hill et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 1742

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III
Examiner
Art Unit 1742

hdw

ROY KING
SUPERVISORY PERSONNEL
TECHNICAL STAFF